

Paragonimus

الدودة دى بتعيش ف الرئة بتاعت الانسان .. و ممكن تتشاف بالعين المجردة....

Geog. Distribution:

Some areas in Asia, Africa & South America "not in Egypt"

Life cycle:

الاصابة اساسا بتكون فى صيادين السمك .. و بما ان الدودة دى عايشة ف الرئة ف اكيد الدودة bronchial tree هتفتح ف

Infected man & fish-eating animals "which has cystic pockets in lung" → eggs in sputum or stool → **miracidium** in water → **micro-cercous cercaria** develops in semisulcospira snail → then encysted metacercaria develops in fish which infect human and animals

Final host: man & fish-eating animals

Habitat: **lungs**

Diagnostic stage: **eggs** in **sputum** or **stool**

1st intermediate host: **semisulcospirasnail**

2nd intermediate host: **shrimps, crabs & crayfish**

Infective stage: **encysted metacercaria**

Mode of infection: ingestion of improperly cooked fish

Development of paragonimus inside the body of infected man:

- 1) ingestion of **metacercaria** in not properly cooked fish
- 2) encysted metacercaria is freed in **stomach** then **small intestine**
- 3) penetration of the **wall of small intestine**
- 4) penetration of **diaphragm & pleura** to reach the **lung** and become **adult**

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Pathogenesis

- 1) In lungs: **granulomatous reactions** around worms
- 2) **Fibrotic encapsulation** which causes the **cystic pockets**
- 3) Migration to ectopic sites

Clinical picture

- 1) chest pain
- 2) chronic cough
- 3) brownish sputum may contain paragonimus eggs
- 4) pleural effusion

Diagnosis:

Clinically: chest pain, productive cough & diet history in endemic areas

Laboratory: eggs in sputum or stool & immunodiagnostic tests "to detect early and chronic infection" (ELISA & CFT) and blood film examination

Radiologically: plain x-ray of chest, computerized tomography (CT)

Treatment: praziquantel

Epidemiology:

- ingestion of raw or incompletely pickled, wine or brine-soaked infected crabs, crayfish & shrimps
- pigs & small animals are **paratenic** host

N.B. paratenic host means a host which carries the parasite in an arrested form

- ingestion of metacercaria during preparation of these fish via contaminated hands or utensils

Control:

- 1) Treatment of cases
- 2) Proper cooking of crabs, crayfish & shrimps
- 3) snail control

Schistosoma

3 species:

- 1) **s.haematobium** present in Egypt
- 2) **s.mansoni** present in Egypt
- 3) **s.japonicum** not in Egypt .. present in Far East

trematodes بالرغم من انها تعتبر واحدة من عائلة ال هنلاقيها بتشد عنهم ف حاجات كثير

N.B. differences between trematodes & schistosoma

- 1) trematodes are hermaphrodite except schistosoma (sexes are separate)
- 2) Eggs are not operculated but have one spine
- 3) infective stage : cercaria not the encysted metacercaria
- 4) mode of infection : skin penetration

Schistosoma is called blood flukes as adult flukes live in blood vessels of infected humans

Life cycle :

Infected human → s.haematobium egg in urine/s.mansoni egg in stool →

In fresh water miracidium develops → reaches B.truncatus (if haematobium) or B.alexandrina (if mansoni) → furco-cercous cercaria develops → it penetrates human skin

Definitive host: infected human

Diagnostic stage: eggs in urine or stool

Intermediate host: B.truncatus or B.alexandrina

Infective stage: cercaria

Mode of infection: skin penetration

Habitat: blood vessels

S.hematobium → Vesical & pelvic plexus of veins

S.mansoni → inferior mesenteric plexus of veins

S.japonicum → superior and inferior mesenteric plexus of veins

How can schistosoma penetrate the human skin

By the help of :

1) Surface tension of drying droplets of water

2) Proteolytic enzymes secreted by penetration glands

3) Strong lashing movement of the tail pressing the body of the cercaria into the skin

Development of schistosoma inside the body of infected human:

- 1) Skin penetration
- 2) The head which penetrates is called schistosomula
- 3) Schistosomula reaches the venous circulation
- 4) Then reaches the capillaries around the alveoli
- 5) Pulmonary veins, aorta then systemic circulation to the liver (portal vein) → adult schistosoma

habitat پس مش ده ال .

- 6) Reaches the final habitat

بعد كده ال هتمشى عكس تيار الدم ف لما توصل للوريد الرفيع متقدرش تكمل ف تخرج الانثى
عشان تضع البيض اللى بتكون ليها شوكة كده تقدر تشبك نفسها ف جدار الاوردة الرفيعة و
تقطع فيها و توصل جدار المثانة و تقطع فيها و فى الآخر نلاقهم نازلين ف ال بتاع العيان
urine adult

FLASHTEAM